FIG.1 (PRIOR ART)

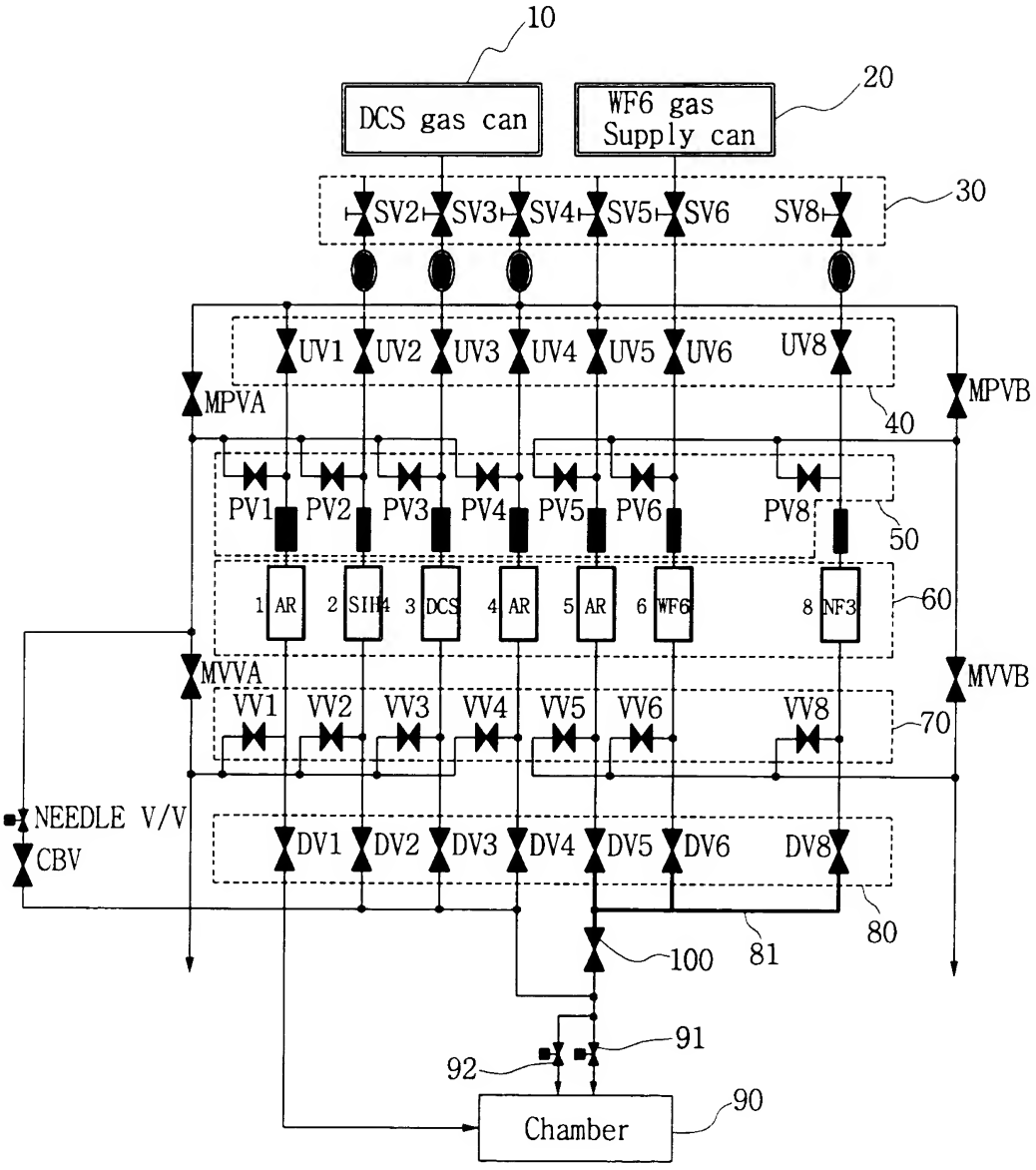

FIG.2

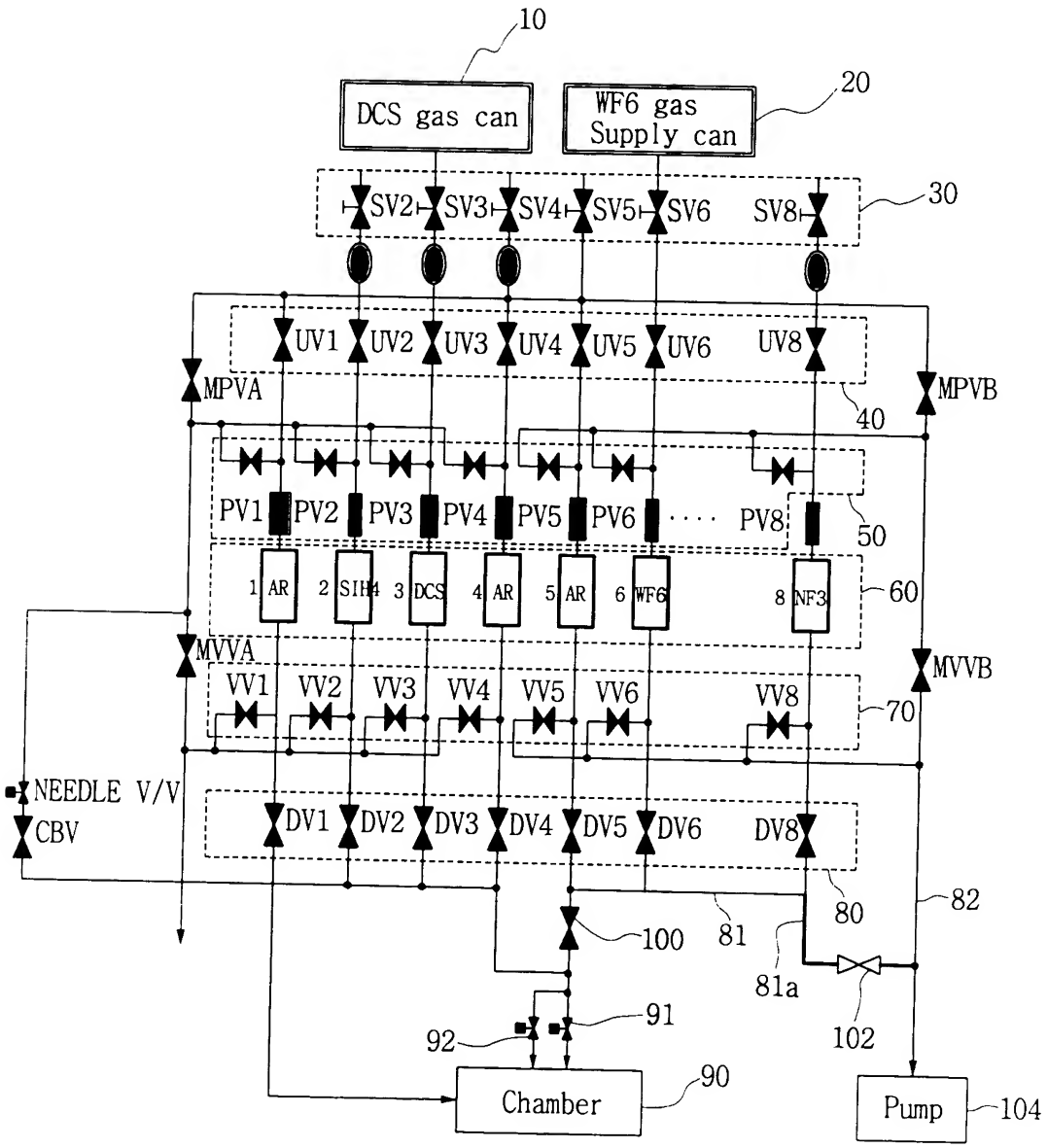
10
DCS gas can
WF6 gas Supply can
20
SV2 SV3 SV4 SV5 SV6 SV8
30
UV1 UV2 UV3 UV4 UV5 UV6 UV8
MPVA
MPVB
40
PV1 PV2 PV3 PV4 PV5 PV6 PV8
50
1 AR 2 SIH4 3 DCS 4 AR 5 AR 6 WF6 8 NF3
60
MVVA
MVVB
VV1 VV2 VV3 VV4 VV5 VV6 VV8
70
NEEDLE V/V
CBV
DV1 DV2 DV3 DV4 DV5 DV6 DV8
80
82
100
81
81a
102
91
92
Chamber
90
Pump
104

FIG.3

	Step Name	Time (sec)	Press (mtorr)	HIVAC	BsAr	SiH_4	DCS	4Ar	5Ar	WF_6	VALVE OPEN
1	P/D	20	0	E	50(v)	0	0	50(v)	50(v)	0	UV1,4,5 VV1,4,5 LSV
2	Heat Up	20	300	D	50	0	0	500	500	0	UV1,4,5 DV1,4,5 LSV
3	Heat Up	30	300	D		0	0	500	500	0	UV1,4,5 DV1,4,5 LSV
4	SiH_4 vent	3	300	D	50	300(v)	0	500	500	0	UV1,2,4,5 DV1,4,5 VV2 LSV
5	SiH_4 flush	40	300	D	50	300	0	500	200	0	UV1,2,4,5 DV1,2,4,5 LSV
6	P/D	20	0	E	0	0	0	0	0	0	
7	DCS vent	5	0	E	50(v)	0	50(v)	50(v)	50(v)	0	UV1,3,4,5 VV1,3,4,5 LSV
8	DCS flush	10	120	D	100	0	106	500	300	5.5(v)	UV1,3,4,5,6 DV1,3,4,5 VV6 LSV
9	Nucleation	12	120	D	100	0	106	500	300	5.5	UV1,3,4,5,6 DV1,3,4,5,6 LSV
10	Bulk	20	120	D	100	0	185	500	300	13	UV1,3,4,5,6 DV 1,3,4,5,6 LSV
11	DCS Post	3	120	D	100	0	175	500	300	0	UV1,3,4,5 DV1,3,4,5 LSV
12	Ar Purge	15	120	D	100	0	0	500	5000	0	UV1,4,5 DV1,4,5 LSV
13	P/D	15	0	E	0	0	0	0	0	0	
14	SiH_4 Post	3	120	D	100	300	0	500	200	0	UV1,2,4,5 DV1,2,4,5 LSV
15	P/D	30	0	E	0	0	0	0	0	0	

Note:

MFC1,2,3,4 and MFC5,6,8 are divided into GAS BOX A and B.

GAS flowing out of GAS BOX A and B joins one GAS LINE and is again divided into INNER and OUTER NIDDLE V/V.

INNER NIDDLE V/V is FULL OPENDE, and OUTER NIDDLE V/V is controllde in the range of 15 to 25mm to maintain UNIFORMITY.

(v) is vented through VENT VALVE .

HIVAC(E) is pumped by turbo pump, pumpimg (D) is dry-pumped by dry-pump without turbo- pump.